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Chinese Undergraduates' Sources of Self-Efficacy: A Mixed-Methods Investigation and Exploration of Individual Differences

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Chinese Undergraduates' Sources of Self-Efficacy: A Mixed-Methods Investigation and Exploration of Individual Differences

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Abstract

Chinese Undergraduates' Sources of Self-Efficacy: A Mixed-Methods Investigation and Exploration of Individual Differences

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According to social cognitive theory (Bandura, 1977), self-efficacy refers to beliefs that one is capable of succeeding at particular tasks and navigating one's environment. Self-efficacy has been hypothesized to be informed by four sources: mastery experiences, vicarious experiences, social persuasion, and physiological states (Usher & Pajares, 2008). However, little is known about how these sources are exhibited by undergraduates in China, a country with a strong collectivistic culture and an education system that emphasizes competition. Furthermore, previous cross-cultural studies have shown collectivists were more prevention-oriented; thus, fear of failure may be prevalent among Chinese students. Additionally, another unique feature of Chinese students is sibling status because of the prevalence of only children (Falbo, 1988).

The purpose of this study was to investigate the sources of self-efficacy of Chinese undergraduates (N=156) and to explore the influence of individual differences

including only-child status, GPA, and fear of failure. Qualitative approaches were used to code students' responses to open-ended questions that asking what made them more and less confident in learning according to Bandura's four sources of self-efficacy and three more additional sources of self-efficacy from recent research. Quantitative analysis revealed a number of differences in the distribution and frequencies of the sources of self-efficacy: the distinction between sources leading to more and less confidence, only-child status, GPA, and fear of failure. Implications for educators and counselors are discussed.

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Introduction

College life is known to challenge students' well-being and demand emotional resilience during academic stress. In particular, students in China experience a great deal of anxiety and competition in regards to their studies at the postsecondary level. A many factors have been proposed to influence undergraduate achievement and well-being, one of the most popular psychological construct known to foster student success is self-efficacy (Multon, Brown, & Lent, 1991). Self-efficacy refers to the beliefs that one is capable of succeeding at particular tasks and navigating one's environment. Antecedents or sources of self-efficacy have been hypothesized by a number of researchers (Usher & Pajares, 2008). However, little is known about how these sources are exhibited by Chinese undergraduates. The present study explores this area by examining the types of sources of self-efficacy that are reported by Chinese students and the influence of characteristics unique to the Chinese context such as only-child status and fear of failure.

Chapter One: Theoretical Framework

Social Cognitive Theory and Self-Efficacy

"The more people bring their influence to bear on events in their lives, the more they can shape them to their liking" (Bandura, 1997, p. 2). Within social cognitive theory, Bandura (1986) emphasized that individuals contain a self system that makes them able to develop and exercise personal control over their feelings, thoughts, and actions. In contrast to behaviorists' perceptions that there is no difference for self-processes, Bandura (1986) argued that self-beliefs play a critical role in human motivation, cognition, and behavior. As a component of Bandura's social cognitive theory, *self-efficacy* refers to individuals' beliefs about their ability to implement a specific task, an aspect that has been found to be a powerful contribution to human functioning (Bandura, 1986).

In social cognitive theory, rather than playing a reactive role controlled either by environment or by biological forces, human agency is viewed as proactive and self-regulating within an interdependent triadic reciprocal causation model (Baudura, 1986; Pajares & Schunk, 2002). In this model, behavior, environmental events, and personal factors including cognitive, affective, and biological events all operate as interacting determinants that bidirectionally influence each other. As an example, if a student holds an optimistic view of a task, he or she may work harder on that task. From another angle, if a student works hard towards a task, he or she may anticipate an optimistic view of the result. In other words, an individual's beliefs may shape how he/she behaves, and the natural effects of his/her behaviors and actions, in turn, may determine their emotional

reactions (Bandura, 2011). In general, there has been overwhelming support for the positive influence of self-efficacy on academic achievement across multiple contexts and domains (Multon et al., 1991; Valentine, Cooper, & Dubois, 2005).

SOURCES OF SELF-EFFICACY

According to Bandura (1997), self-efficacy beliefs are constructed and developed from four principal sources: mastery experiences, vicarious experiences, social persuasion, and physiological and affective states. In addition, the latest literature addresses certain additional sources of self-efficacy, such as self -regulation, help availability, and interests (Butz & Usher, 2015; Collins, Usher & Butz, 2015; Fong & Krause, 2014; Usher, 2009).

Mastery Experiences

Mastery experiences are students' interpretations of their own authentic previous accomplishments, and are the most powerful sources of self-efficacy (Usher & Pajares, 2008). Successes increase efficacy beliefs whereas failures undermine them, especially if the failures occur before efficacy beliefs are robustly built (Bandura, 1997). For example, students create appraisals to interpret the result of a completed academic task. If they perceive that their attainments have been successful, their efficacy beliefs for accomplishing similar tasks are increased, whereas if they perceive their attainments as failures, their efficacy beliefs of succeeding in similar tasks are decreased.

Vicarious Experiences

Students also appraise what they can do from observing others through vicarious experiences (Bandura, 1997). The perceived similarity of the model's status is one

important aspect of vicarious experiences (Bandura, 1986). Seeing similar models (e.g., similar in age, gender, and ability) perform well on a difficult academic task may make a student think that he or she can succeed as well. However, other than similar models, "self-efficacy appraisal will vary substantially depending upon the talents of those chosen for social comparison" (Bandura, 1997, p. 87). In addition, Bandura (1997) argued that "when adequacy must be gauged largely in relation to the performance of others, social comparison operates as a primary factor in the self-appraisal of capabilities." Specifically, through social comparison, exceeding competitors or others engaged in similar efforts raises students' efficacy beliefs, whereas being outperformed diminishes them. Usher and Pajares (2008) noted that social comparative information plays a particularly important role during students' transitional periods, such as from a lower school to a higher school, most likely because students are unsure about their abilities and have little experience with the academic tasks at hand in the new environment.

Social Persuasions

Social persuasions and evaluative feedback from teachers, peers, and parents can strengthen or weaken a student's confidence (Bandura, 1997; Joet, Usher, & Bressoux, 2011). A student's efficacy belief may be raised when significant others convey faith in his or her capabilities rather than expressing doubts, especially when he or she is struggling in certain situations (Bandura, 1997). Even though social persuasions alone may have limited power for building a long lasting increase in efficacy beliefs, it provides support for self-change if the praise is realistic and within authentic boundaries (Bandura, 1997). On the other hand, criticism may lower students' sense of self-efficacy

(Fong & Krause, 2014). In addition, disparaging feedback from trusted friends, teachers, or colleagues may leave students with a "bruised" sense of efficacy (Pajares, 2006).

Physiological and Affective States

When students are evaluating their capabilities, they may rely partly on physiological and emotional states such as stress, anxiety, and fatigue (Bandura, 1997; Usher & Pajares, 2008). Different levels of arousal influence efficacy, depending on how students interpret the arousal (Pintrich & Schunk, 2002). For example, when one student experiences an overwhelming anxiety or stress towards mathematical tasks, his or her efficacy beliefs may be decreased. This is partly because he or she may regard anxiety or stress as an indicator of incompetence (Usher & Pajares, 2008).

Additional Sources of Self-Efficacy

Self-regulation

Self-regulated learning is the ability to identify self-generated learning goals and behaviors that move learners toward the achievement of their learning goals, involving goal-orientated activates that students initiate, modify, and sustain (Zimmerman, 2000; Zimmerman, 2008). Previous research (Hampton & Mason, 2003) showed that combining the four sources of self-efficacy as one latent variable significantly predicted self-regulatory efficacy beliefs of high school students in the United States. Usher's qualitative study (2009), as well as Fong and Krause's mixed method study (2014), similarly found that students with low self-efficacy cited self-regulation as an important source of their self-efficacy. For example, some stated that lacking study habits and/or time-management strategies made them feel less confident.

Help Availability

Help availability refers to students' perceptions of help needed, help available, and/or help received (Usher, 2007). Butz and Usher (2015) identified help availability as one source of middle school students' self-efficacy in math and reading. For example, in their study, one student stated that his self-efficacy increased when his friend and he worked together on a summer assignment and helped each other to understand the work better. Butz and Usher (2015) found that the available help that made students feel more confident came mainly from their teachers.

Interest

According to Self-determination theory (Ryan & Deci, 2000), humans have a basic psychological need for autonomy to provide the intrinsic motivation needed for functioning at their best. Collins, Usher, and Butz (2015) found that perceived autonomy was significantly interrelated with the original four sources of self-efficacy. They indicated perceived autonomy support as a source of mathematics self-efficacy among middle school students. In Butz and Usher's study (2015), both autonomy and interest were reported as factors that raised self-efficacy in reading. They also called for investigating the role of interest and autonomy as sources of self-efficacy in future studies.

Sources of Self-Efficacy and Cultural Influences

Bandura (1997) argued that "cultural values and practices affect how efficacy beliefs are developed." (p. 32) Apart from the U.S. context, some studies have reported on sources of self-efficacy in different cultures. Joet, Usher, and Bressouox (2011)

examined how the different elementary school classroom contexts in France explained variation in students' self-efficacy. They found that French students who were part of a class with higher average self-efficacy in mathematics and French felt more confident in these two domains partly because they were influenced by vicarious experiences in this beneficial classroom context.

Klassen (2004) found that sources of self-efficacy were different for Indo-Canadian seventh grader students whose home cultures emphasized collectivism and Anglo-Canadian students whose home cultures could normally be described as individualistic. Whereas only two self-focused sources (mastery experiences and physiological states) significantly predicted Anglo-Canadian students' self-efficacy, Indo-Canadian students' self-efficacy were predicted by both the self-focused sources and other-focused sources (vicarious experience and social persuasion). Particularly, Indo-Canadian students strongly highlighted social comparison with others as an important contribution to of their efficacy beliefs.

Another cross-cultural study by Ahn, Usher, Butz, and Bong (2015) investigated whether two social sources of self-efficacy (vicarious experiences and social persuasions) were perceived differently by middle school students from various cultures: Korea and the Philippines (collectivistic), and the U.S. (individualistic). They found that efficacy beliefs were equally predicted by vicarious experiences conveyed by teachers between Korean and U.S. students. However, social persuasions from peers best predicted Filipino students' efficacy beliefs.

FEAR OF FAILURE

Bandura (1982) described fear as aroused by considered inefficacy in dealing with potentially aversive events. Previous studies found that self-efficacy beliefs, working as a cognitive mechanism, reduce fear arousal (Bandura & Adams, 1977; Bandura, Adams, Hardy & Howells, 1980). For example, individuals who have phobic disorders may alleviate their fear arousal through strengthening their efficacy after completing various tasks of different threat values.

Self-worth theory (Covington, 1992; Covington & Beery, 1976) claims that self-acceptance is the most important human priority. Fear of failure, as one failure-avoiding tactic to protect self-acceptance, refers to the motivation to avoid failure because the perceived incompetence may trigger an individual's shame, embarrassment, and humiliation (Covington, 2000; Herman, 1990). For example, some defensive strategies are driven by students' fear of failure, such as self-handicapping strategies (generate an excuse for failure) and defensive pessimism (make unrealistically low expectations for a task), and can work to protect an individual's self-esteem in the short term (Covington, 2000). However, the extensive long-term effects of these strategies may attenuate and gradually begin to lower self-protective functions, partly due to students finding it more and more difficult to believe their excuses through repeated failure (Castella, Byrne, & Covington, 2013; Covington, 2000).

In regards to cross-cultural contexts, one study found that Asian-American college students had higher fear of failure than Anglo-American peers (Zusho, Pintrich, & Cortina, 2005). Similarly, Steinberg, Dornbusch, and Brown (1992) discovered that Asian-American students revealed a higher fear of academic failure than African- and

Hispanic-American students, partly because they believed that their incompetence at school may have a negative influence on their future. Other than studies on Asian-American in the United States, Hepper, Sedikides, and Cai (2013) found that compared to Western students, Chinese college students reported greater defensive strategies, which may be driven by a high fear of failure. In addition, fear of failure has been acknowledged as a strong predictor of academic achievement in East Asian settings (Heine, Kitayama, & Lehman, 2001; Heine et al., 2001).

CHINA'S CULTURAL CONTEXT

Higher Education in China

In 2014, the number of students in higher education in China had grown to 35 million students (see Ministry of Education of People's Republic of China 2015), reaching the highest number of college students in the world (Bie & Yi, 2014). In order to attend higher education, most Chinese students take an annual college entrance exam called "*gaokao*" at the end of their high school year. After the exam, the Ministry of Education organizes students in ranks and allocated five to six colleges they may attend in an application form. Lastly, according to their test scores, they will be admitted (or not) to a particular college with a certain major. The "classroom" is the basic unit in Chinese colleges, where students take required (major-related) courses with their same major cohort peers. Beyond the academic domain, social activities in college (i.e., student unions) dramatically increase compared to high school.

Collectivistic Culture

China has been arguably identified as the country that represents the largest collectivistic culture (Oyserman, Coon, & Kemmelmeier, 2002). Individuals with a collectivistic orientation are prone to giving priority to interdependent goals rather than personal goals and more likely to be influenced by others' opinions than those in individualistic cultures (Triandis, 1989). Even though previous meta-analytic results (Heine & Hamamura, 2007) have shown that the self-system of individuals in East Asia is not toward self-enhancement, Bandura (1997) argued that self-efficacy still plays an important role in collectivistic cultures. This is because individuals do not absolutely live either without others and "interdependence does not obliterate a personal self" (Bandura, 1997, p. 32). As a result, investigating sources of self-efficacy of Chinese college students may uncover a different way of explaining how the self-system operates in a collectivistic culture.

Only Children

Another unique feature of Chinese college students is their sibling status as either only children or children with siblings. In 1979, the one-child policy that restricted each family to have just only one child was launched in China. (Note that in some rural areas or among ethnic minorities, this policy was not strictly enforced.) Because of this policy, there has been a surge in psychological and sociological research on only children in China. For example, there is a stereotype called the "little emperor" regarding Chinese only children because only children may be the center of familial attention. Only children who are spoiled by their four grandparents and two parents are known as experiencing the "4-2-1" syndrome (Fong, 2004; Lee, 1992). This "little emperor" stereotype has been

associated with negative outcomes for Chinese only children such as low levels of cooperativeness and high degrees of frustration proneness (Jiao, Ji, & Jing, 1986). However, some studies discovered that only children exhibit no difference (e.g., personality) with their peers who have siblings or perform slightly better (e.g., higher achievement and motivation) than their peers with siblings (Falbo, 1987; Falbo & Poston, 1993; Poston & Falbo, 1990), which is consistent with a meta-analysis of only children in Western countries (Falbo & Polit, 1986). Due to discrepant findings in the only child literature, I wanted to investigate the role of sibling status in the current study.

Chapter Two: The Current Study

The current study focused on the context of college students in China, where sources of self-efficacy have not been investigated. The goal of this study was to expand the work in self-efficacy to new cultural contexts to examine the sources of self-efficacy of undergraduates in China. In addition, I wanted to explore the influence of individual differences relevant to China's cultural and academic contexts including only child status, GPA, and fear of failure. My study was guided by two research questions using a combination of qualitative and quantitative methodologies:

1) Through a qualitative lens, what are the academic sources of self-efficacy reported by Chinese undergraduates, when asked what makes them feel more or less confident?
2) In a quantitative approach, what is the role of sibling status, GPA, and fear of failure on the academic sources of self-efficacy?

By understanding the sources of self-efficacy in collectivistic cultures, researchers and educators in China may have a better understanding of what can contribute to students' success.

Chapter Three: Method

Participants

The participants were 156 undergraduates (67 men, 89 women) enrolled in two sections of an introductory psychology course at a mid-sized public university in southeastern China. The surveys were initially distributed to 163 participants. However, seven students did not respond to the open-ended questions of interest: "List one thing that makes you more confident in learning" and "List one thing that makes you less confident in learning" and were excluded from further data analysis. Students were mostly first- or second-year college students. Forty-eight percent of students reported they were only children in their families, and 60.3% of students had a GPA of 80% or higher (equivalent to a "B" average in the U.S. higher education system).

Procedures

The paper-based survey was administered during the 2015 spring semester over the course of two class sessions of a required orientation psychology course. Students spent approximately 20-30 minutes completing the survey. All surveys were presented in Mandarin Chinese. First, students answered questions regarding demographics and their GPA. Second, students answered two open-ended questions asking what made them more and less confident in their learning. Third, students completed one measure, in the form of a numerical scale, assessing their level of fear of failure. At the end of the survey, students received small gifts for their participation (e.g., pens and notebooks).

Measures

The current study used one 15-item measure of fear of failure and two open-ended questions. Because the measure was originally in English and there was no Mandarin Chinese version available, I translated the items into Mandarin Chinese. In order to validate this translation, another Chinese graduate researcher studying at a U.S. institution back-translated them into English. The original and the back-translated versions of the questions were evaluated for consistency in their meaning. The Chinese graduate student and I engaged in a detailed discussion of the translations to adjust any discrepancies between the English version items and Mandarin Chinese version.

Fear of failure

Fear of failure has been defined as the irrational fear that one will not succeed (Berry, 1975). The measure for fear of failure used in this study was selected from the Success/Failure Questionnaire II (SFQ; Herman, 1990). It was designed to measure various constructs of fear of failure that students may experience when striving for academic achievement, such as goal setting, risk taking, and need to achieve, based on the identification of fear of failure by Atkinson and Feather (1966). In this study, only a 10-item subset of fear of failure items were used ($a = 0.76$). Sample items included "I sometimes put forth only a small amount of effort toward accomplishing an important task, even though I know success is possible" and "When I fail a task, I am even more certain that I lack the ability to perform the task." The measure used a 5-point Likert scale ranging from 0 = "Strongly Disagree" to 5= "Strongly Agree."

Open-ended Questions

The surveys included two open-ended questions asking students what makes them more confident and less confident in their learning: "In the space provided below, please write one thing that makes you MORE confident about yourself in learning" and "In the space provided below, please write one thing that makes you LESS confident about yourself in learning." As suggested by Bong (2006), the term "confident" was used in the questions instead of "self-efficacy" in order to make efficacy concepts easier to understand for students. Students were asked to provide at least 100 characters (in Mandarin Chinese) to encourage them to elaborate on their sources of self-efficacy.

Before coding, I transcribed and translated all of the 312 open-ended responses (156 "more confident" responses and 156 "less confident" responses) from Mandarin Chinese into English. Then, I selected 100 open-ended responses (50 for "more confident" responses, 50 for "less confident" responses) for translation consistency evaluation. This back-translation procedure was the same as the item translation process described previously.

ANALYSIS

For this mixed-methods investigation, I use a number of analytic approaches. For the qualitative portion, I used the following coding procedures. First, using typological analysis (see Hatch, 2002), I developed a preliminary list containing four codes in the first-level codes according to Bandura's (1997) original description of four principal sources of self-efficacy: mastery experiences, vicarious experiences, social persuasions, and physiological and affective states. For example, mastery experiences were coded if students referenced previous experiences, including successes or failures as influencing

the way they view a new learning task. Vicarious experiences were coded when students described seeing a social model similar to themselves succeed or fail, or as a social comparison with their peers. Social (or verbal) persuasions were coded when students addressed positive or negative feedback from others. Physiological and affective states were coded if students' responses related to anxiety, mood, or arousal. "Other" codes were applied to the rest of the responses that did not correspond to the four initial categories. A second coder, a doctoral-level scholar familiar with research on self-efficacy and its sources, was consulted to establish reliability.

Second, after assigning first-level codes, I analyzed the "other" responses according to the guidelines set forth by a recent mixed methodoly study on the sources of self-efficacy (Butz & Usher, 2015). After a discussion with the second coder, three codes were adopted for coding the "other" responses: self-regulation, help-availability, and interest. These sources were also supported by previous literature (Butz & Usher, 2015; Fong & Krause, 2013). For example, self-regulation was coded when students' statements were related to work habits and self-regulatory strategies and skills. Help-availability was coded when students stated that when help was needed, it was available and received. Interest was coded if students expressed interest in learning. I coded all the open-ended responses by myself. In order to check coding consistency, 20% of all the codes (65 out of 312) were re-coded separately by the second coder. The inter-rater reliability was high with an agreement rate of 90.8 % (59 out of 65).

Third, in order to examine whether students rely on the same or different sources of self-efficacy in what makes them more confident and what makes them less confident,

a code of "different" was assigned if students reported different sources of self-efficacy for these subgroups, and a code of "same" was assigned if students reported the same sources of self-efficacy in both subgroups.

In addition, some students cited multiple sources of self-efficacy in a single open-ended responses. Therefore, some responses had two codes or possibly up to three codes. Because I was interested in the range of responses students offered when discussing their self-efficacy, I conducted all the analyses at the code-level versus the student-level. Although there are some inherent dependency issues, I wanted to avoid excluding codes simply because students provided multiple aspects in their response. This follows a similar procedure to previous research on the sources of self-efficacy (i.e., Butz & Usher, 2015).

In order to analyze the frequency of each source of self-efficacy as well as the distribution of the reported sources for the overall sample and across subgroups, I conducted two quantitative approaches. In order to determine differences in the distribution of sources of self-efficacy for both prompts (MORE and LESS confident) as well as other dichotomous variables such as only child status (vs. child with siblings) and GPA (high vs. low), I ran a series of chi-square tests, to determine if a particular source was disproportionately reported more or less frequently. To assess whether a specific source had greater representation between groups, I coded each source dichotomously (e.g., reported mastery experiences vs. did not report mastery experiences). Because fear of failure is a continuous variable in the analysis of individual differences, I conducted a

series of logistic regressions with fear of failure predicting the dichotomous outcome of reporting a source or not.

Chapter Four: Results

The result section will begin by addressing the two open-ended questions, examining the frequency of each sources of self-efficacy and the resulting distributions. Second, I will discuss the results of individual differences influencing students' reported sources of self-efficacy.

Distribution of Sources of Self-Efficacy

For the qualitative results, first I provide overall patterns of the data for the full sample, including the two questions – "what makes students more confident in learning" and "what makes students less confident in learning." Second, I describe qualitative examples of how students constructed different sources of self-efficacy under more confident and less confident learning situations separately.

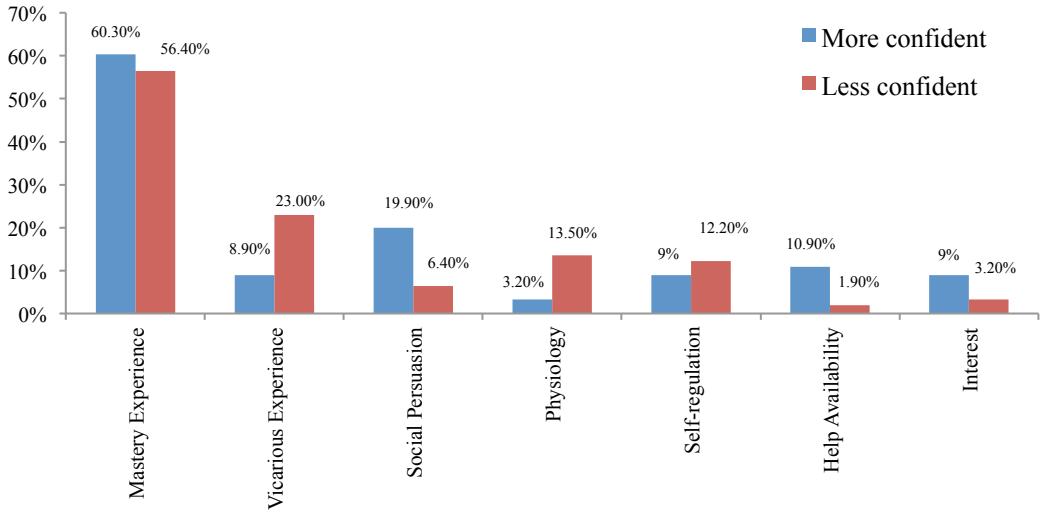

Figure 1: Distribution of sources of self-efficacy when reporting what makes students feel more confident and less confident in learning.

Note: Percentages reflect the ratio of each code to all codes assigned in each open-ended question.

Figure 1 shows in both cases what makes Chinese undergraduates more confident and less confident in learning. Mastery experiences (60.3% for "more confident", 56.4% for "less confident") are the most frequently reported source of self-efficacy. However, the other sources of self-efficacy varied for more and less confident responses. For the sources of self-efficacy that make students more confident, the next most frequent sources are social persuasion (19.9%), help availability (10.9%), self-regulation (9%), and interest (9%). By contrast, the sources of self-efficacy that make students less confident include the next four sources: vicarious experiences (23%), physiology (13.5%), self-regulation (12.2%), and social persuasion (6.4%).

Of 156 students, 51 (32.7%) reported the same sources of self-efficacy for making them more confident and making them less confident. Specifically, 86% of them relied on mastery experiences as their consistent sources of self-efficacy for both more and less confident subgroups.

When comparing the distribution of reported sources of self-efficacy between the two prompts (that is, MORE confident and LESS confident), some interesting results emerged. Students reported social persuasions more frequently in building their confidence in learning than in decreasing their confidence in learning [χ^2 $(1, N=156) = 6.091, p = 0.014$]. In contrast to social persuasion, students reported vicarious experiences through social comparison more frequently in decreasing their confidence in learning rather than building their confidence in learning [χ^2 $(1, N=156) = 4.584, p =$

0.032]. In addition, physiological and affective states were more often mentioned in situations where students did not feel confident than in situations where students felt more confident [χ^2 (1, N=156) = 9.604, p=0.002]. For the other sources, there were either no other significant contrasts, or sample sizes were too small to conduct chi-square tests.

ILLUSTRATIVE EXAMPLES OF THE SOURCES OF SELF-EFFICACY

In the following section, I describe and highlight the sources of self-efficacy students cited by highlighting illustrative quotes for each source. Although this is not an exhaustive representation of all responses, the purpose of the qualitative analysis is to uncover the antecedents that may inform Chinese college students' self-efficacy. My goal was to capture the voices of the students as they reflected upon their academic experiences and their relations to their self-efficacy.

Mastery Experiences

Mastery experiences were the most frequently reported sources of self-efficacy for both making students more confident and less confident in learning. Across both categories, there were many similar references to experiences of mastery leading to greater and diminished confidence. For example, students referred to prior experiences, including the grades they had received in previous academic tasks, preparation for the academic tasks, or socially related activities (e.g., clubs, student union, sports). For example, one student recounted: "When I meet challenges in my studies, my successful interview experience when I joined the student union strengthens my confidence. I could pass the interview, so how couldn't I pass my exam?" Another student wrote: "I put great effort (two-months morning reading) into preparing for my mid-term English test, and

eventually I got a high score on that test. This experience makes me more confident in my future English learning." When asked what makes them less confident, one student stated: "I did not prepare very well for one of my major tests, and I got an unsatisfactory score on that test, which made me less confident in my other major-related courses. I learned a lesson from it." In addition, many students said the experience of adaptation to college learning models influenced their sense of self-efficacy: "Until coming to college, I found that the English courses here place value more on speaking skills. I am gradually building my confidence by adapting to this change in college."

However, when asking what makes them more confident, some students mentioned the experience of getting a good grade on an exam, but without sufficient preparation: "Actually, I did not put too much effort into my study. So I feel confident when I get a good grade on an exam by chance." "I remembered that I spent only less than one week learning and reviewing Legal Logics, and got a 80+ on the final exam. This episode helped me build confidence in my future learning." Although these successes may be interpreted as building one's sense of self-efficacy, it should be noted that they are not effort-based and may lead to maladaptive approaches towards learning in the future.

Vicarious Experiences

Many students felt less confident when they found their abilities and performance were outperformed by their peers. One student wrote:

> During the class, some classmates responded quickly and answered the instructor's questions with perfect answers. Sometimes I could not even

understand the instructor's question. It makes me feel that there is a deep gap between my classmates and me. I felt less confident when I compared myself with my classmates.

In addition, certain students felt less confident in situations when, even though they put effort into their learning, their performance was still not up to their peers' performance. For example, one student stated: "Some students who study far less than me get even better grades than me. How could I feel confident in this situation?" In contrast, performing better than their peers contributed to increasing students' confidence in learning. For example, one student wrote: "I felt confident when my final grades were highest among all my roommates." If students perceived that their peers had less successful performance compared to themselves, they felt more confident as well. One student said: "One exam was very difficult, and I did not have a good grade on it. But when I found out that my friends around me had worse grades than me, I felt more confident about myself."

As mentioned earlier, the perceived similarity between a model and the individual is one critical aspect of vicarious experiences (Bandura, 1986). However, in this study, only one student reported that his efficacy beliefs decreased according to a similar model's poor performance: "When I saw that my friend who came from the same high school as mine did not pass the certificate exam, my confidence for passing that exam decreased a lot."

Social Persuasions

Encouragements as well as criticism from teachers was a salient factor in making students more or less confident in learning. For example, one student stated: "I lost my confidence when my teacher only provided criticism in his feedback, instead of encouragement, after I incorrectly answered the question in class." Another student said: "I felt more confident in my future when my professor expressed his appreciation of my logical competence. He said he held an optimistic view for my future as a lawyer!" Besides the encouragements conveyed in an obvious or direct way, some teachers' encouragements were expressed in a more subtle way:

> One time, my Calculus teacher asked me to solve one question on the board. I was pretty nervous at first. However, my teacher whispered encouragingly to me just to try my best with supportive eye expression. Since then, as soon as I think of the encouraging whisper and the supportive eye expression from this teacher, I feel more confident in my learning.

In addition, approval and recognition from classmates also improved students' confidence. One student said: "I felt more confident when my excellent project was praised by my peers. More praise, more confidence."

Physiological and Affective States

Students also discussed a variety of physiological and affective states when discussing their confidence. One student wrote: "I really felt stressed and even found it hard to fall asleep when I thought of the overwhelming homework load and endless exams in my mathematics class." Many students discussed a lack of mastery experiences and how such lack led to depression and anxiety:

I was frustrated that I failed in a major-related competition in the last round. I experienced a sense of depression after that competition and felt pressure because of my limited major knowledge.

In addition to a lack of mastery experiences, some students reported anxiety and how that related to self-regulation: "I felt anxious and at a loss when I could not carry out my study plan as scheduled." Another student wrote: "I felt anxious when I could not follow what the teacher taught in class. If I had reviewed the class content earlier, I would feel less anxious now."

Even though few students reported physiological or affective states as sources of self-efficacy to make them feel more confident, one example did occur: "I feel more confident in learning when I am in good mood because I am eating well, sleeping well, and relaxing well."

Self-regulation

Instances of citing self-regulation were the fourth most frequently reported sources of self-efficacy in learning situations that made students both more confident and less confident. From students' reports, successfully carried out strategies and plans to finish academic tasks will make them more confident, As one student stated: "When I could manage the time, methods, and plans for studying, and when I could carry out the plan as scheduled, I would feel more confident."

Furthermore, progress after self-regulated activities made students more confident as well. One student wrote: "I monitored myself, devoting more time in learning and reading for my major this semester, and I improved a lot on my midterm exams. I became

more confident when I felt more self-disciplined." In contrast, failing to self-regulate themselves, even though they understood that they should manage their own learning, made students feel less confident in learning. One student wrote:

> I could not concentrate on and understand what the professor taught in class. I felt that time flew throughout the semester and I didn't know how to prepare for the final tests, and didn't even know what to do in the library. This episode diminished my confidence in learning.

In addition, some students discussed a lack of self-regulation, like time management, and how that related to adaptation to college: "I could not quickly adapt to the independent and flexible learning atmosphere in college. The more flexibility and freedom I have when studying, the less confident I feel that I can control my time and achieve my learning goals." Another student stated: "My first semester in college, I was suddenly occupied by so many social activities and did not spend much time reviewing the knowledge I learned in class. I felt less confident because I was unable to balance my time between social activities and studies."

Help Availability

Students addressed help availability more often when discussing situations that made them feel more confident. Specifically, receiving help from and cooperating with peers made students more confident in academic tasks and social-related study activities. One student wrote about experiences of studying together with classmates: "My roommates are so helpful for my studying. They often share their notes and material with me. With their help, I have progressed in my studies and have become more confident."

Similarly, another student stated:

> I felt comfortable doing some readings with my classmates in the library. I gradually had more confidence, as I could exchange my learning experiences and share books with them. Because of this experience, I thought that studying in college might not be as difficult as I had thought before, and it was full of fun with them.

In the social-related study activities, students expressed that they felt more confidence in the task through cooperation with peers:

> When I prepared for a scientific technology innovation and entrepreneurship competition organized by my university, I cooperated closely with my friends. I felt more confident during the process as we helped each other to achieve the same goal.

Only three students reported that lack of help availability made them feel less confident in learning. All of the statements were relevant to their adaptation to college life. For example, one student wrote: "I did not have too many friends when I just started college. So I did not receive help from them, which made me less confident in school."

Interest

Students' interests were mentioned frequently as possible sources of self-efficacy for situations where students felt more confident. Many students expressed their interest in their major or courses: "My major is fantastic for me! I enjoy learning things that I am really interested in and broadening my scope of knowledge relevant to my field, which made me more confident in my college studies." Another student wrote:

> In the first semester in college, my entry-level major course "Introduction to Law" introduced different laws in China, which increased my interest in this major. Also, the teacher for the course "Technology of Physical Evidence" in the second semester gave us opportunities to conduct experiments depending on our interest, which made me more confident in this discipline.

In the above statement, this student not only addressed his interest in the major course, but also addressed the perceived autonomy from his instructor. Feeling free to select learning material in which they are interested seemed to make students feel more confident.

Other students expressed their interest in some social activities, other than in their major, which increased their confidence in learning. For example, one student wrote: “In college, I became interested in watching American TV shows. Gradually, I became interested in imitating their facial expressions and English pronunciation. Having these interests drove me to be more confident in learning new things.”

Only five students reported that losing interest in their major or courses made them feel less confident in learning, partly because they found their major had little connection to society and their future career plans. For example, one student said: “One thing in college that makes me less confident in learning is that if I gradually realized that a course is useless and not relevant to my future career plan, I would lose my interest and enthusiasm in this course.”

INDIVIDUAL DIFFERENCES IN THE SOURCES OF SELF-EFFICACY

In the following section, I report on whether the types and frequencies of self-efficacy differ on a range of individual characteristics. I test whether there are differences between a) only children and children with siblings, b) high and low GPA, and c) levels of fear of failure.

Differences by Sibling Status

The overall difference of the percentage of codes assigned by college students' sibling status (only child vs. child with siblings) was statistically significant (see Table 1). College students who are only children coded self-regulation, $\chi^2(1, N = 156) = 8.728$, $p = 0.003$, and help availability, $\chi^2(1, N = 156) = 3.873$, $p = 0.049$, more frequently in making them feel more confident in learning than students who have siblings. However, when asked what makes them feel less confident, students with no siblings (only children) cited mastery experiences more frequently, $\chi^2(1, N = 156) = 6.179$, $p = 0.013$, as well as a lack of self-regulation, $\chi^2(1, N = 156) = 5.683$, $p = 0.017$. Students with siblings relied more on vicarious experiences (social comparison), making them more confident, $\chi^2(1, N = 156) = 4.375$, $p = 0.036$, as well as less confident, $\chi^2(1, N = 156) = 5.756$, $p = 0.016$, in learning than students with no siblings.

	More Confident		Less Confident	
	Only-child (n = 75)	Child with siblings (n = 81)	Only-child (n = 75)	Child with siblings (n = 81)
Mastery Experiences	**56%**	**64.2%**	**66.7%**	**46.9%**
Vicarious Experiences	4%	**13.6%**	**14.7%**	**30.9%**
Social Persuasions	**17.3%**	**22.2%**	6.7%	6.2%
Physiology Status	2.7%	3.7%	12%	**14.8%**
Self-regulation	**16%**	2.5%	**18.7%**	6.2%
Help Availability	**16%**	6.2%	1.3%	2.5%
Interest	12%	6.2%	2.7%	3.7%
Total number of codes assigned	92	96	92	88

Table 1. Sources of self-efficacy by students' sibling status

Notes: Percentages reflect the rate of the number of codes assigned to a selected coding category for a given group (numerator) to the total number of codes assigned for a given group (denominator). Chi-square statistics were used to calculate significant differences

between groups. Because the Chi-square statistic requires the expected count not to be less than 5, physiological status in the more confident subgroup, and help availability and interest in the less confident subgroup were not calculated by Chi-Square statistics. Categories with the three highest percentages for each given group are marked in boldface. Values presented in boxes were statistically significantly different, $p < .05$.

Differences by GPA

I also found statistically significant differences in the percentage of codes assigned to the responses of high and low GPA students (see Table 2). Low GPA students reported interest as a factor more frequently, than high GPA students in what made them feel more confident in learning, $\chi^2(1, N = 156) = 6.448, p = 0.011$. Whereas when considering what made them feel less confident, high GPA students more frequently reported mastery experiences, $\chi^2(1, N = 156) = 3.952, p = 0.047$, and lack of self-regulation, $\chi^2(1, N = 156) = 5.184, p = 0.023$.

	More Confident		Less Confident	
	Low GPA (n=62)	High GPA (n=94)	Low GPA (n=62)	High GPA (n=94)
Mastery Experiences	**56.5%**	**62.8%**	**66.1%**	**50%**
Vicarious Experiences	11.3%	7.4%	**25.8%**	**21.3%**
Social Persuasions	**19.4%**	**20.2%**	4.8%	6.4%
Physiology Status	3.2%	3.2%	**9.7%**	16%
Self-regulation	12.9%	6.4%	4.8%	**17%**
Help Availability	9.7%	**11.7%**	1.7%	3.2%
Interest	**16.1%**	4.3%	3.2%	3.2%
Total number of codes assigned	80	109	72	109

Table 2. Sources of self-efficacy by students' low and high GPA

Note: Chi-square statistics were used to test for statistically significant by differences between groups. Because the Chi-square statistic requires the expected count not to be less than 5, physiology status in the more confident subgroup and help availability and interest in the less confident subgroup were not calculated by Chi-Square statistics.

Categories with the three highest percentages for each given group are marked in boldface. Values presented in boxes were statistically significantly different, $p < .05$.

Differences by Levels of Fear of Failure

Through a series of separate logistic regressions, I found that fear of failure significantly predicted certain sources of self-efficacy. In the "more confident" situation, higher fear of failure was most associated with mastery experiences ($B = 0.152$, $p < 0.001$) and help availability ($B = 0.104$, $p = 0.047$). In contrast, lower fear of failure was associated with greater endorsement of self-regulation ($B = -0.117$, $p = 0.038$) and interest ($B = -1.174$, $p = 0.004$) in situations that made them more confident in learning. On the other hand, in "less confident" situations, higher fear of failure predicted endorsement of vicarious experiences (social comparison) ($B = 0.103$, $p = 0.012$) as a source of self-efficacy.

Chapter Five: Discussion

The purpose of the study was to investigate the sources of self-efficacy of Chinese undergraduates and to explore the influence of individual differences including only-child status, GPA, and fear of failure. First, coding open-ended responses that students had reported as reasons for their confidence (and lack of) in learning revealed seven categories of sources of self-efficacy. Four of the seven categories encompassed Bandura's (1997) originally hypothesized sources (mastery experiences, vicarious experiences, social persuasions, and physiological/affective states). Three additional sources, all cited in more recent research were needed: self-regulation, help-availability, and interest. Through a qualitative lens, I found that students shared diverse perspectives regarding antecedents of what made them more and less confident. Portraying the voices of Chinese undergraduates through illustrative quotes provided insight into the ways students process inputs and information from their academic environment. These sample responses shed light into the perceptions of undergraduates and the mechanisms through which students develop their sense of competence and efficacy.

In addition, using a quantitative approach, I examined a number of differences in the distribution and frequencies of the sources of self-efficacy: the distinction between sources leading to more and less confidence, only-child status, GPA, and fear of failure. I discuss each of these in the following sections.

Pathways Toward Self-Efficacy

After examining the distribution of the sources of self-efficacy, I observed some noteworthy patterns. First, mastery experiences were reported most frequently when

considering factors that made students feel both more and less confident. This finding is in line with previous theory and research that suggest the indisputable influence of mastery experiences on self-efficacy. In addition, other sources that had relatively equal frequencies of reporting as factors that led to greater and less confidence were self-regulation and interest (Help-availability did not differ as well, but cell sizes were too small to perform an actual test of difference). However, the existence of different frequencies of reported sources between the more and less confident categories provides initial evidence of two different pathways toward students' sense of self-efficacy: a set of sources that more directly builds self-efficacy, and another set of sources that lessens self-efficacy.

Specifically, students more frequently reported social persuasion as a source of greater confidence compared to lesser confidence. Thus, students cited experiences of receiving praise to build confidence more frequently than that of criticism as confidence-shaking. In addition to the influence of mastery experiences, I argue that the pathway towards greater self-efficacy was uniquely characterized by social persuasions. In collectivistic cultures, individuals often regard themselves as part of an interdependent network (Markus & Kitayama, 1991). Thus receiving praise, especially from critical figures like teachers with authority and power, might confirm teacher expectations in classroom settings. In addition, research has long supported how verbal encouragements are critical towards positive self-perceptions and motivation (Fong, Patall, Vasquez, & Stautberg, under review; Hattie & Timperley, 2007; Henderlong & Lepper, 2002; Mueller & Dweck, 2004). Feelings of personal success and the evaluation and validation

of that success from social persuasions seem to be the salient antecedents to greater confidence among Chinese undergraduates.

In contrast, a pathway towards lowered self-efficacy seemed determined by a set of sources that made students feel less confident. Interestingly, students reported more physiological/affective states and vicarious experiences (i.e., social comparisons) when citing factors for lower confidence compared to those for greater confidence. It follows that affective states such as anxiety or hopelessness and instances of negative social comparisons were unique mechanisms for the lowered self-efficacy pathway. Given the prevalence of students' reporting anxiety as an academic emotion (Zeidner, 2007), it is not surprising that affective states of discomfort and stress were more associated with this negative pathway.

Furthermore, negative social comparisons, or feeling less confident when others outperformed them, were also key contributors to this pathway. This finding indicates that some Chinese college students might adopt a competitive goal with their peers, with the idea that one student's win is another student's loss (Deutsch, 1980). One explanation is that the grades and the associated class ranks that are implied by grades are extremely valued in the Chinese education system. For example, in classroom settings, some teachers may announce publicly students' grade rank (i.e. top 20%) in a final exam to recognize their achievement and motivate them for further academic accomplishment. In such an environment that is heavily constructed by comparison in terms of grades and ranks, students may accumulate a sense of academic competition with their peers, because only a fraction of students can be top ranked. Thus, it is understandable that they

may feel less confident when others outperform them. In addition, this finding is also supported by a recent meta-analysis on the effects of negative feedback on self-efficacy, which found that normative feedback was more detrimental to students' sense of competence (Fong et al., under review).

In sum, particular factors appear to contribute predominantly to one of two pathways. The positive pathway toward greater self-efficacy was characterized by social persuasions whereas the negative pathway toward lowered self-efficacy was associated with physiological/affective states and vicarious experiences. Other sources such as mastery experiences seemed to be more "universal" and served as potential mechanisms for both pathways.

INDIVIDUAL DIFFERENCES

Following previous research on students' sources of self-efficacy, I examined the influence of individual differences on the endorsement of particular sources. Specifically, I found a number of differences between only children and children with siblings and high and low GPA students as well as the role of fear of failure.

Only-child Status

From the results of this study, it appears that only-children reported different sources of self-efficacy from their counterparts with siblings. The source of self-regulation seemed to play a critical role for only-children because they more frequently reported confidence with self-regulation as a source and vice versa. Because Chinese only children tend to be more self-centered (Wang, Leichtman, & White, 1998), they may adopt more self-oriented learning strategies, and if they lose the control of their learning

process, they may feel less confident. However, in the current study, Chinese only-children cited help availability as a source making them more confident in learning, which indicates that even if they were more self-centered, they were willing to work together with their peers and draw confidence from that. This finding is inconsistent with Jiao, Ji, and Jing's (1986) study that Chinese only-children at elementary school were more egocentric and less likely to cooperate with peers. As suggested by Falbo (2012), maturational shifts into adulthood play an important role in the status of only- children. I assume that through upon adulthood, Chinese only-children have greater opportunities to interact with their peers and improve in cooperativeness, or become even more cooperative than their peers with siblings.

By contrast, students with siblings cited more vicarious experiences (i.e., social comparisons) as sources that made them both more and less confident in learning. One potential explanation for this finding is the increased opportunities of social comparisons with siblings in the form of sibling rivalry or jealousy and competition with their brothers or sisters (Koch, 1956; Toman, 1993). In school settings, students with siblings may carry over this pattern of sibling rivalry with their peers through comparing their academic performance with that of others. This line of thinking was supported by one study using experimental economics techniques (Cameron, Erkal, Gangadharan, & Meng, 2013) that found that participants with siblings may be more competitive than their only-child counterparts, as indicated by their higher completion rate in a competition game.

GPA

Findings from this study suggested that low GPA students reported interest more frequently as a source of self-efficacy than high GPA students when considering what made them more confident. Examining the open-ended responses provided by students, I noticed that some of them cited interest beyond the academic domain and focused on social-related activities rather than academic tasks. Perhaps switching their interest from academic tasks to social related activities made them more confident by avoiding the frustration brought on by academic setbacks.

Regarding factors that made them less confident, low GPA students more frequently reported poor mastery experiences but less frequently their lack of self-regulation, compared to high GPA students. This result suggests that students with low GPAs are more influenced by their failures simply because they experience failure more frequently or chronically from their poor performance in college. Interestingly, they did not cite as frequently their lack of self-regulation which is a more controllable attribution, so that if properly acknowledged by the low GPA student, may potentially improve their academic performance.

Fear of Failure

Results indicated that different levels of fear of failure influenced the type of sources of self-efficacy students reported. One type of defensive strategies - self-handicapping, referring to individuals' premeditated excuses to deflect potential failure (Covington, 2000), might explain why fear of failure was associated with lower reports of self-regulation and interest as sources in making students feel confident in learning. Instead of oriented to approach academic achievement through intrinsic engagement as

was true of low fear of failure students, high fear of failure students may use self-handicapping strategies to explain their potential failure. Task avoidance, intentionally reserving effort, lack of practice, or procrastination are all examples of self-handicapping strategies (Covington, 1992; Martin, Marsh, & Debus, 2003; Riggs, 1992) and are behaviors that arise when self-regulation and interest are absent, which is consistent with previous finding that handicapping predicts poor self-regulation (Martin, Marsh, & Debus, 2001). On the contrary, fear of failure was positively associated with a higher degree of endorsement of mastery experiences as a source for in increasing their confidence in learning. This finding supports the notion that fear of failure students may rely on their previous successes to feel confident, but perhaps because they did not prepare well for an exam and did well, there is a persistent anxiety regarding their true capabilities.

Interestingly, high fear of failure was associated with greater endorsements of help availability as an important source in increasing their efficacy beliefs. This result might be well suited to Higgins's (1997) prevention regulatory focus. Under the frames of promotion-prevention regulatory focus theory (Higgins, 1997), instead of being driven by nurturance needs such as positive outcomes with a promotion focus, a prevention focus was driven by security concerns, which may have led individuals to such actions as encouraged protection and safety issues (Florack & Hartmann, 2007). With high sensitivity about potential failure, prevention-oriented students may seek out available resources around them through help availability, which may protect them from academic failure, thus improving their confidence in learning.

In consideration of what makes students feel less confident, fear of failure was found to be associated with vicarious experiences that mainly consisted of social comparisons. Different ways of defining success by self-worth theory could be used to explain this finding (Covington, 2000). Compared to mastery-oriented students who may try their best and remain unconcerned about the achievement of others, high fear of failure students may regard their ability in terms of status and how they fare against their peers in academic tasks.

LIMITATIONS

Even though the main purpose of this study was to investigate sources of self-efficacy in an unstudied context and give opportunities to students to project their voices, one of the limitation of this study was the relatively small sample size. In the quantitative analyses, I was unable to calculate chi-squares for all sources of self-efficacy and individual differences (such as physiological states) due to small sample sizes.

Moreover, this study was conducted among Chinese college students, and future research needs to be considered among younger Chinese students. Family has traditionally been described as the fundamental cultural unit in China, and Chinese individuals are regarded to be highly familial (Ho, 1998). Thus, compared to college students who live away from their family, younger Chinese students and their sources of self-efficacy may be influenced to a greater degree by their family members because of their more frequent interactions at home.

Chapter Six: Conclusion

There are several important implications for theory and practice from this study. With regards to theory, the qualitative results from students' reports of factors that increase or decrease their confidence supported the four original sources of self-efficacy as well as the sources from a more modern expansion of the theory. In addition, the interplay of individual characteristics and the sources of self-efficacy sheds new cultural insights on the contextual influences on social cognitive theory. Future research should examine the psychological processes that may distinguish only children from children with siblings, particularly in the realm of self-beliefs for the academic settings.

In regards to practice, understanding antecedents to students' feelings of increased and decreased confidence provides some direction for educators and counselors to cultivate student well-being and positive self-beliefs. For example, because of the importance of mastery experiences, appropriate scaffolding and well-targeted assignments for students may improve their feelings of mastery and overall efficacy. Furthermore, emphasizing student mastery over performance in classroom assessments may reduce the competitive nature and social comparisons, feelings of anxiety, and fear of failure they can experience. Lastly, taking into consideration students' familial context and sibling status may guide instructors and counselors to help students navigate their academic journeys with greater sensitivity toward their previous socialization experiences and how such influences may affect their learning in higher education.

Appendix A

Success/Failure Questionnaire II

(10-item subset of fear of failure were selected)

Here are some questions about yourself. Please use the scale under each statement to indicate your answer. Circle the number in the scale that best describe what you think.

1. When I start doing poorly on a task, I feel like giving up.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

2. If given a choice, I have a tendency to select a relatively easy task rather than risk failure.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

3. When I fail at a task, I am even more certain that I lack the ability to perform the task.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

4. When I fail, I often ask myself why I failed.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

5. Sometimes I think it is better not to have tried at all, than to have tried and failed.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

6. I sometimes put forth only a small amount of effort toward accomplishing an important task, even though I know success is possible.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

7. When I am interrupted in an important task, I find that I easily forget about the project I was working on.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

8. When I experience failure, I expect to receive punishment from someone.
   ① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

9. I usually find that I am well prepared for success on a task that I value, but I do not perform that task well under the pressure of the moment.

① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

10. I usually rely heavily upon feedback from others when I attempt to determine if a task is easy or hard.

① Strongly Disagree ② Disagree ③ Neutral ④Agree ⑤ Strongly Agree

Appendix B

Open-ended Questions

In the space provided below, please write one thing that makes you MORE confident about yourself in learning:

In the space provided below, please write one thing that makes you LESS confident about yourself in learning:

Appendix C

Demographic Information

Please answer the following questions.

A. What is your sex?_____ 1. Male 2. Female

B. Are you the only child in your family?_____ 1. No 2. Yes

C. What is your GPA in college? _____

D. Which year are you in college? _____

Appendix D

Consent Form

Emerging Adults: College Motivation

You are invited to participate in a research study, "Emerging Adults: College Motivation." The purpose of this research study is to discover factors that promote and impede motivation for Chinese undergraduate students. Your participation in the study will contribute to a better understanding of the various factors that promote or inhibit your academic success and well-being. You must be 18 years old to participate. If you agree to participate, completing this questionnaire will take about 30 minutes of your time, and you will not be compensated financially for your time.

Risks/Benefits/Confidentiality of Data

There are no known risks stemming from your participation. Your name will be used solely for the purpose of giving you course credit for participation. A limited number of research team members will have access to your name during data collection. Any identifying information about you will be stripped from the final dataset.

Contacts

If you have any questions about the study, contact the researcher, Shengjie Lin at 512.925.7516 or send an email to shengjie.lin@utexas.edu.

I have read the description of the study that is printed above, and I agree to participate in it. I know that I can quit the study at any time. Please check whether or not you will participate and sign below.

Yes, I agree to participate in the research activities as described above.

No, I do not agree to participate in the research activities as described above.

Signature_____ Date_____

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